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| 10/568,990 | 02/21/2006 | Hidetoshi Oyama | 39712 | 1781 |

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| EXAMINER | |
|---|---|
| KERNS, KEVIN P | |

| ART UNIT | PAPER NUMBER |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/568,990 | OYAMA ET AL. | |
| | Examiner | Art Unit | |
| | Kevin P. Kerns | 1725 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *31 May 2007 and 22 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-10 and 12-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 12-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 April 2006 and 22 June 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/31/07 (2 filed)*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 4, the phrase "can be" is indefinite, as "can be" recites an optional function of being "engaged" in the 8th line of the claim. It is suggested to replace "can be" with "are" to more distinctly define this limitation in the claim.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-10 and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sigl (US 5,642,260) in view of JP 8-99182 (complete translation of the Japanese document provided in the previous Office Action).

Sigl discloses an arc welding power supply housing, in which the housing of the arc welding supply apparatus 10 includes a plurality of heat radiating electrical components; front and back panels (12,14), a base 16, and a top cover 18; a pair of side walls (26,28) and top panel 30 forming a cooling wind tunnel (box body) in which a heat radiating unit (first electrical element in the form of a power module heat sink 42, which has heat radiating fins internal to the box body, in a portion of an outer peripheral portion that defines a cavity portion) is enclosed, with the heat radiating unit 42 defining rows of cavities and having a tunnel shape and a substantially cuboid shape (beneath the top panel 30 that forms an outer peripheral portion that further defines a cavity portion for air flow therethrough); a fan 23 mounted adjacent an opening (air flow hole portion) of the heat radiating unit 42 while being aligned with two "inside-facing" openings (louvres 20,22) arranged in the two front and back panels (12,14) to form mutually facing surfaces, or side panels, all of which combine to be operable for allowing air to flow therethrough; and a plurality of other (e.g. second, third etc.) electrical elements that generate heat adjacent the outer peripheral portion defining the cavity portion, including a rectifier (inclusive of a rectify diode 25) heat sink 34,

transformer 32, inductor 38, stabilizer 42, and plural reactors in the form of coils, windings, or conductors of small resistance (column 2, lines 64-67), which are all disposed within the wind tunnel (abstract; column 1, lines 5-44; column 2, lines 14-67; column 3, lines 1-10; and Figures 1-6). Sigl does not specifically disclose the use of two or more rows of cavity portions, including respective (plural) fans, as well as an inverter circuit arranged in the arc welding control unit.

However, JP 8-99182 discloses an inverter-type welding power source unit, in which the inverter welding power source includes a housing (unit box body 12) that encloses an inverter circuit 62, a plurality of heat-generating electrical elements, and a box body 72 divided into two rows of cavity portions, each cavity portion of which includes a respective fan 74 for providing an air stream flow through the respective cavities, such that these features are advantageous for eliminating interference between the welding power source unit and the surrounding environment, thus improving the reliability and performance of the inverter welding power source unit (abstract; paragraphs [0007]-[0047] of translation; and Figures 3-6).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the arc welding power supply housing with a wind tunnel, as disclosed by Sigl, by using the inverter welding power source unit that includes an inverter circuit and two rows of cavity portions, including respective fans, as taught by JP 8-99182, in order to eliminate interference between the welding power source unit and the surrounding environment, thus improving the reliability and

performance of the inverter welding power source unit (JP 8-99182; abstract; and paragraphs [0007], [0008], and [0047] of translation).

6. Claims 1-10 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider (US 6,888,099) in view of JP 8-99182 (complete translation of the Japanese document provided in the previous Office Action).

Schneider discloses a wind tunnel for an arc welding power supply housing, in which the arc welding supply housing 12 includes a plurality of heat radiating electrical components; front and rear panels (16,18), a base panel 19, and a top cover 14; a U-shaped panel 50 (second chamber interior to the housing 12 of Figures 2, 3, 6, and 7) that includes side panels (56,58), a top panel 54, and side openings (64,66), thus forming a cooling wind tunnel 52 (box body) in which a heat radiating unit (first electrical element in the form of a heat sink assembly 48, which has heat radiating fins (108,110) internal to the box body (wind tunnel 52), in a portion of an outer peripheral portion that defines a cavity portion) is enclosed, with the heat sink assembly 48 defining rows of cavities and having a tunnel shape and a substantially cuboid shape (enclosed by the top panel 54 and side panels (56,58) that form an outer peripheral portion that further defines a cavity portion for air flow therethrough); a fan 124 mounted adjacent an opening (air flow hole portion) of the heat sink assembly 48 while being aligned with two "inside-facing" openings (louvres 20 on the cooling inlet 22 and cooling exit 24 of the housing 12) arranged in the two front and rear panels (16,18) to form mutually facing surfaces, or side panels, all of which combine to be operable for allowing air to flow

therethrough; and a plurality of other (e.g. second, third etc.) electrical elements 90 that generate heat adjacent the outer peripheral portion defining the cavity portion (abstract; column 1, lines 6-8 and 28-54; column 2, lines 39-67; column 3, lines 1-35 and 64-67; column 4, line 1 through column 8, line 3; and Figures 1-7). Schneider does not specifically disclose the use of two or more rows of cavity portions, including respective (plural) fans, as well as an inverter circuit arranged in the arc welding control unit.

However, JP 8-99182 discloses an inverter-type welding power source unit, in which the inverter welding power source includes a housing (unit box body 12) that encloses an inverter circuit 62, a plurality of heat-generating electrical elements, and a box body 72 divided into two rows of cavity portions, each cavity portion of which includes a respective fan 74 for providing an air stream flow through the respective cavities, such that these features are advantageous for eliminating interference between the welding power source unit and the surrounding environment, thus improving the reliability and performance of the inverter welding power source unit (abstract; paragraphs [0007]-[0047] of translation; and Figures 3-6).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the arc welding power supply housing with a wind tunnel, as disclosed by Schneider, by using the inverter welding power source unit that includes an inverter circuit and two rows of cavity portions, including respective fans, as taught by JP 8-99182, in order to eliminate interference between the welding power source unit and the surrounding environment, thus improving the reliability and

performance of the inverter welding power source unit (JP 8-99182; abstract; and paragraphs [0007], [0008], and [0047] of translation).

***Response to Arguments***

7. The examiner acknowledges the applicants' amendment, replacement drawing sheet, and two IDS's received by the USPTO on May 31, 2007 and June 22, 2007. The IDS's have been considered and initialed, and copies are provided with this Office Action. It is noted that no translations (nor abstracts) were provided for JP 50-26344 and JP 59-77578 U, and the applicants are requested to provide abstracts (if available) for these documents in response to this Office Action. The replacement drawing sheet of June 22, 2007 is approved and overcomes the prior drawing objection. The May 31, 2007 amendments overcome prior objections to the abstract, specification, and claims, as well as prior 35 USC 112, 2nd paragraph rejections. The prior 35 USC 102 rejections are overcome, since cancelled dependent claim 11 has been incorporated into independent claim 1. However, a new 35 USC 112, 2nd paragraph rejection is raised by the amendments to claim 4 (see above section 2). The applicants have cancelled claim 11. Claims 1-10 and 12-19 are currently under consideration in the application.

8. Applicants' arguments filed May 31, 2007 have been fully considered but they are not persuasive.

With regard to the applicants' remarks/arguments on pages 13 and 14 of the amendment of May 31, 2007, it is noted that the applicants have incorporated cancelled

claim 11 into independent claim 1, thus necessitating new 35 USC 103(a) rejections (see above sections 5 and 6), with newly underlined portions of sections 5 and 6 reflecting amended claim 4. Regarding the applicants' argument (in the paragraph bridging pages 13 and 14 of the remarks), the statements "Shimada's 72 is a collar through which a control board 36 is arranged on an upper board 20c. Shimada does not teach or suggest that the Shimada's unit main body 20 is divided to two or more rows." appear to be in error, as the abstract states "box body 72", which is located within an outer "unit box body 12". As disclosed in the abstract and shown in Figures 3-6, two rows of cavity portions exist within the box body and are divided so that respective fans 74 provide air stream flows through the respective cavity portions (see abstract). As a result, all claims of record remain rejected as set forth in above sections 5 and 6.

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jonathan Johnson can be reached on (571) 272-1177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin P. Kerns Kevin Kerns 6/30/07
Primary Examiner
Art Unit 1725

KPK
kpk
June 30, 2007